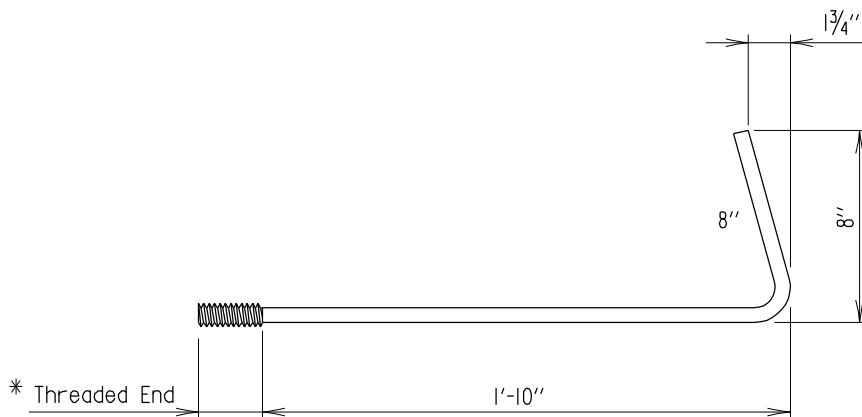


5RW1  
TYPE 17  
1'-10" INCLUDING THREADS



5RW2  
TYPE 17  
2'-6" PLUS THREADS

\* Root diameter of threaded end must be equal to the nominal diameter of a #5 rebar.

If necessary, the next larger size bar shall be used to satisfy this requirement at no extra charge to SHA.

OTHER RELATED STANDARDS  
RW(0.01)-80-100  
BR-SB(0.01)-80-101

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<i>L.S. Friedman</i> DIRECTOR OFFICE OF STRUCTURES DATE: 3/17/94	
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REINFORCING BAR STANDARD  
DRAINAGE SYSTEM  
THREADED REBAR DOWEL COUPLER

STANDARD NO. REBAR-BD(2.21)-93-285

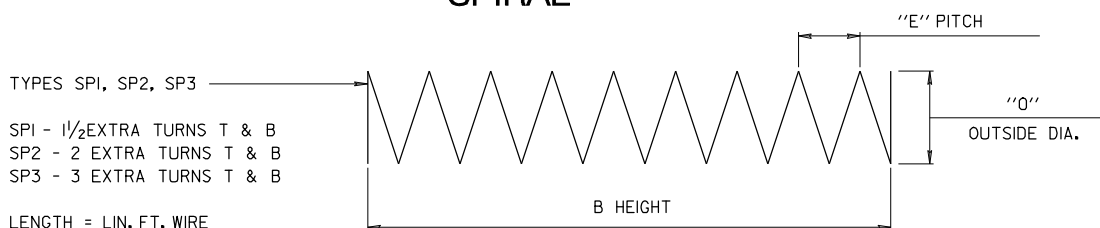
SHEET 1 OF 1

REBAR BAR BENDS

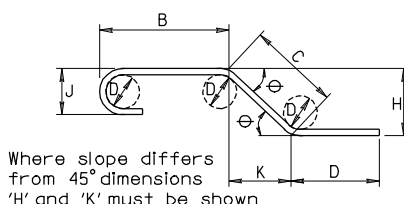
# TYPICAL BAR BENDS

## DETAILS AND NOTES

### SPIRAL



Unless otherwise noted diameter D is the same for all bends and hooks on a bar



ENLARGED VIEW SHOWING  
BAR BENDING DETAILS

#### Notes:

1. All dimensions are out-to-out of bar or to tangent points for 135° and 180° hooks.
2. 'J' dimensions on 180° hooks to be shown only where necessary to restrict hook size. Otherwise standard hooks are to be used.
3. Where 'J' is not shown, 'J' will be kept equal to or less than 'H' on truss bars. Where 'J' can exceed 'H' it should be shown.
4. 'H' dimension on stirrups to be shown where necessary to fit within concrete.
5. Where bars are to be bent more accurately than standard bending tolerances, bending dimensions which require closer fabrication should have limits indicated.

### NOTE TO FABRICATOR

#### BENDING TOLERANCE NOTE

TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO INCH (+0'') MINUS (-) NORMAL ACI BENDING TOLERANCES

#### APPROVAL

*L. S. Friedman* DIRECTOR  
OFFICE OF STRUCTURES

DATE: 2/10/94

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BAR BEND TYPES  
GENERAL NOTES

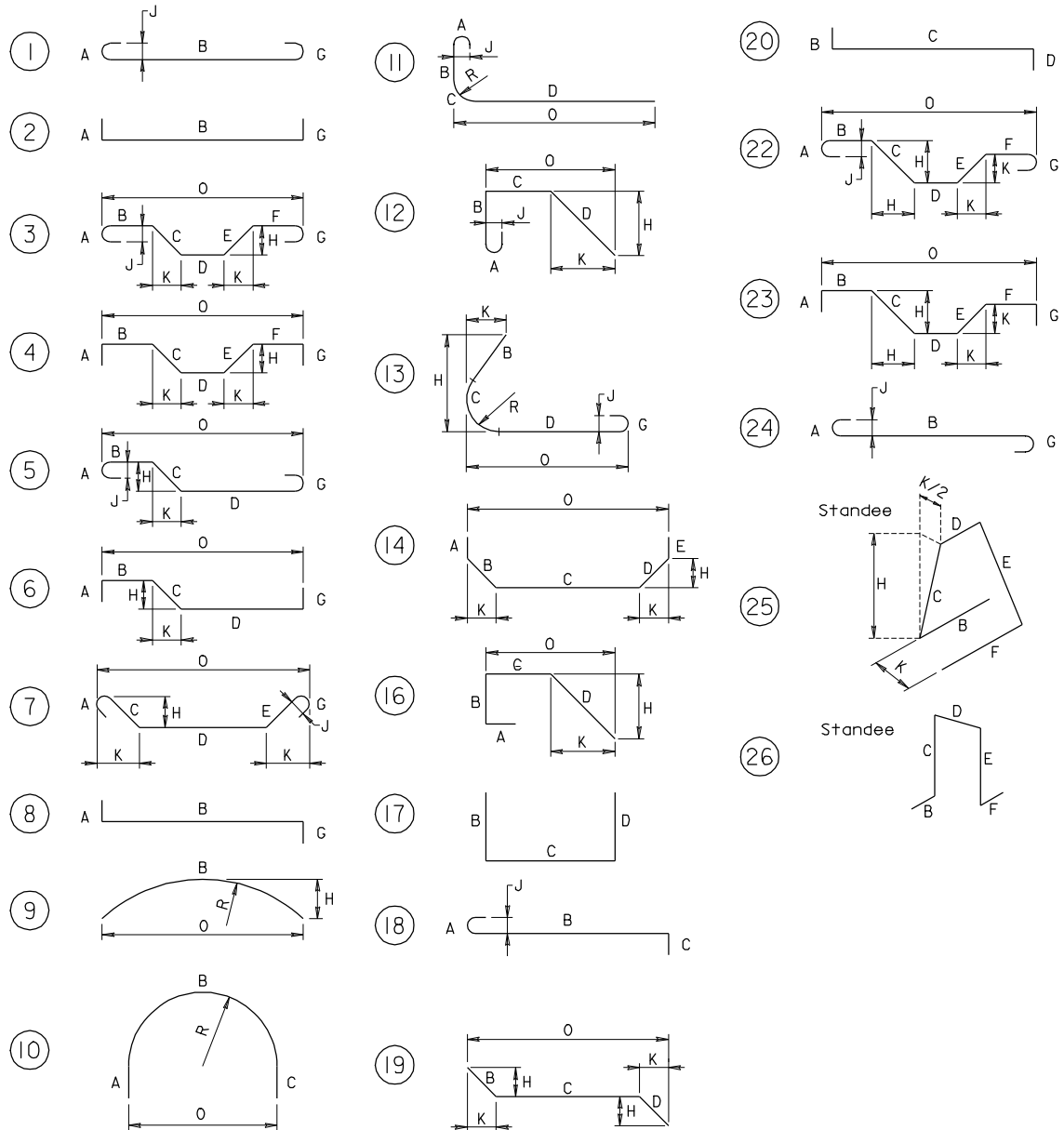
STANDARD NO. REBAR-BD(00.1)-94-296

SHEET 1 OF 8

REBAR BAR BENDS

# ACI TYPICAL BAR BENDS

## STANDARD PIN BENDING



### NOTE TO FABRICATOR

#### BENDING TOLERANCE NOTE

TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO INCH (+0'') MINUS (-) NORMAL ACI BENDING TOLERANCES

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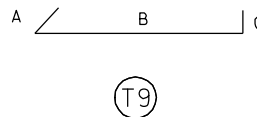
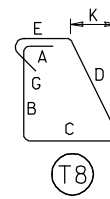
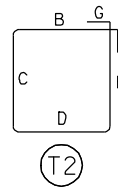
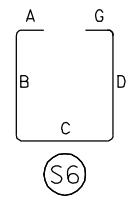
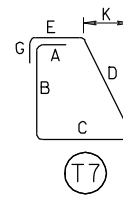
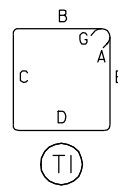
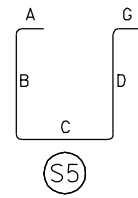
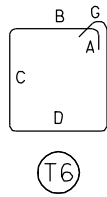
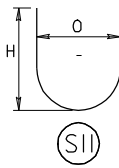
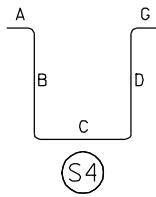
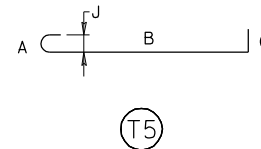
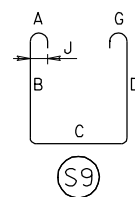
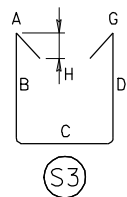
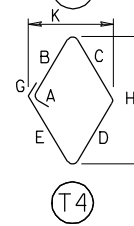
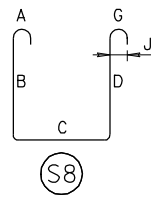
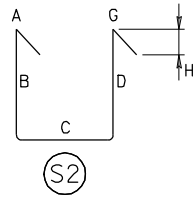
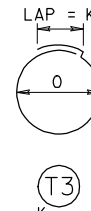
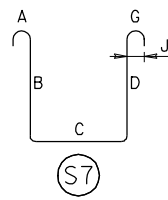
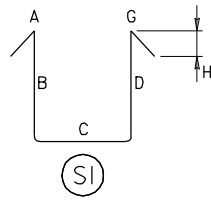
BAR BEND TYPES  
ACI - STANDARD PIN BENDING

STANDARD NO. REBAR-BD(00.1)-94-296

SHEET 2 OF 8

# ACI TYPICAL BAR BENDS

## TIES AND STIRRUPS



### NOTE TO FABRICATOR

#### BENDING TOLERANCE NOTE

TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO INCH (+0'') MINUS (-) NORMAL ACI BENDING TOLERANCES

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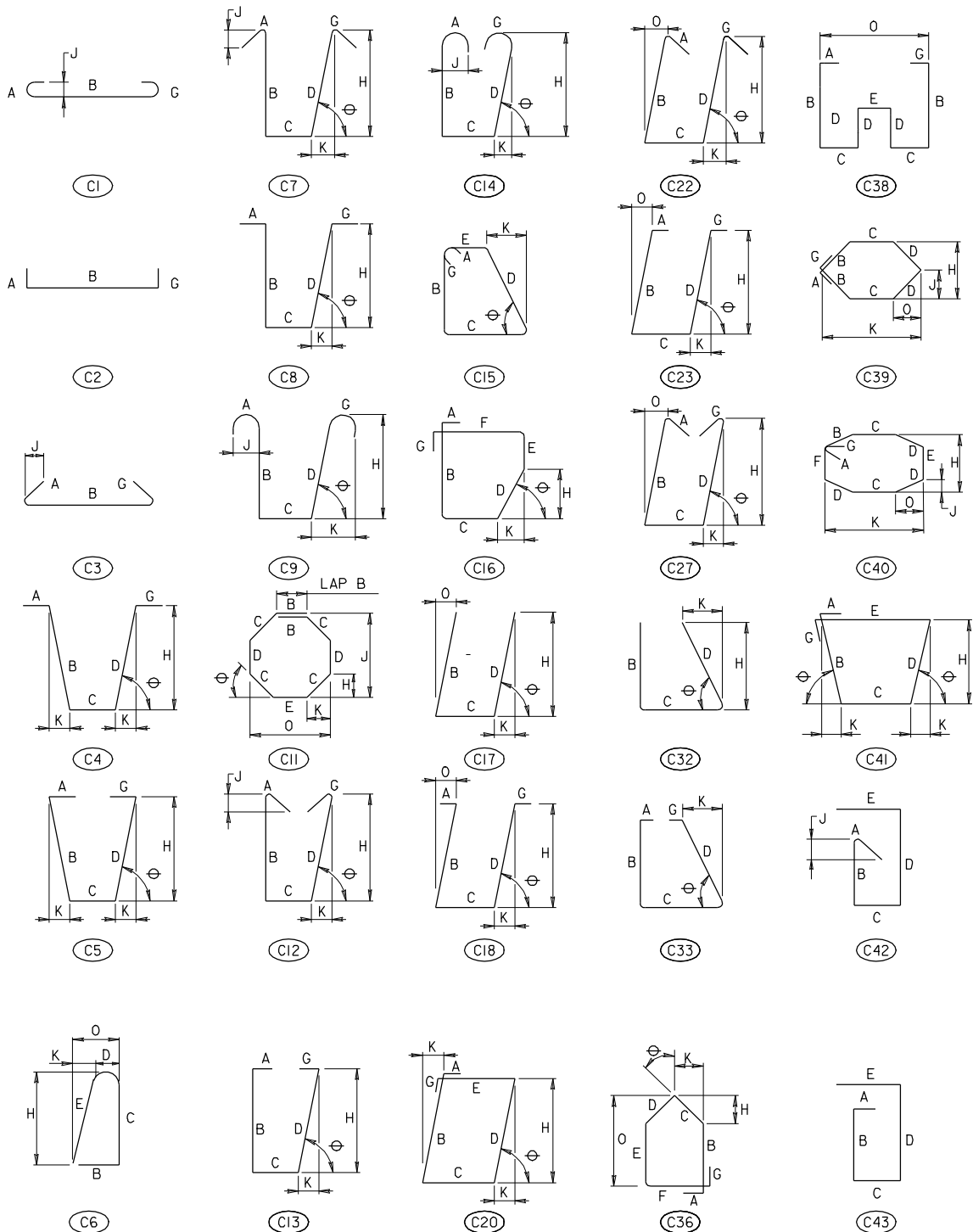
BAR BEND TYPES  
ACI- TIES A

STANDARD NO. REBAR-BD(00.1)-94-296

SHEET 3 OF 8

REBAR BAR BENDS

## TIES AND STIRRUPS



## NOTE TO FABRICATOR

**BENDING TOLERANCE NOTE**

TIES AND STIRRUPS SHALL BE  
BENT WITH A PLUS ZERO INCH  
(+0'') MINUS (-) NORMAL ACI  
BENDING TOLERANCES

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BAR BEND TYPES  
SHA - TIES AND STIRRUPS

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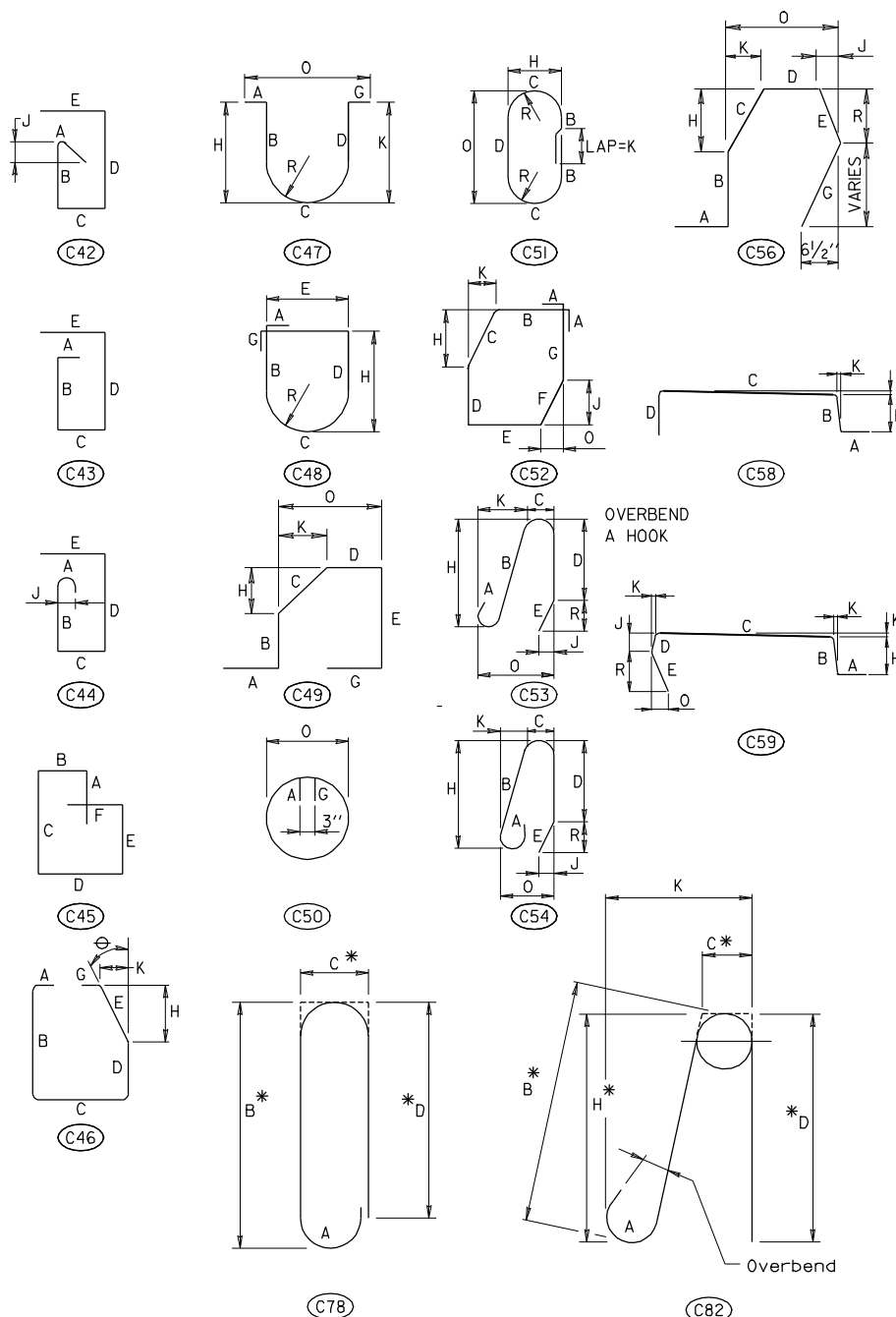
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SHEET 4 OF 8

## REBAR BAR BENDS

# SHA TYPICAL BAR BENDS

## TIES AND STIRRUPS



### NOTE TO FABRICATOR

#### BENDING TOLERANCE NOTE

TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO INCH (+0'') MINUS (-) NORMAL ACI BENDING TOLERANCES

\* Measured to Tangents of Curves.

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BAR BEND TYPES  
SHA - TIES AND STIRRUPS

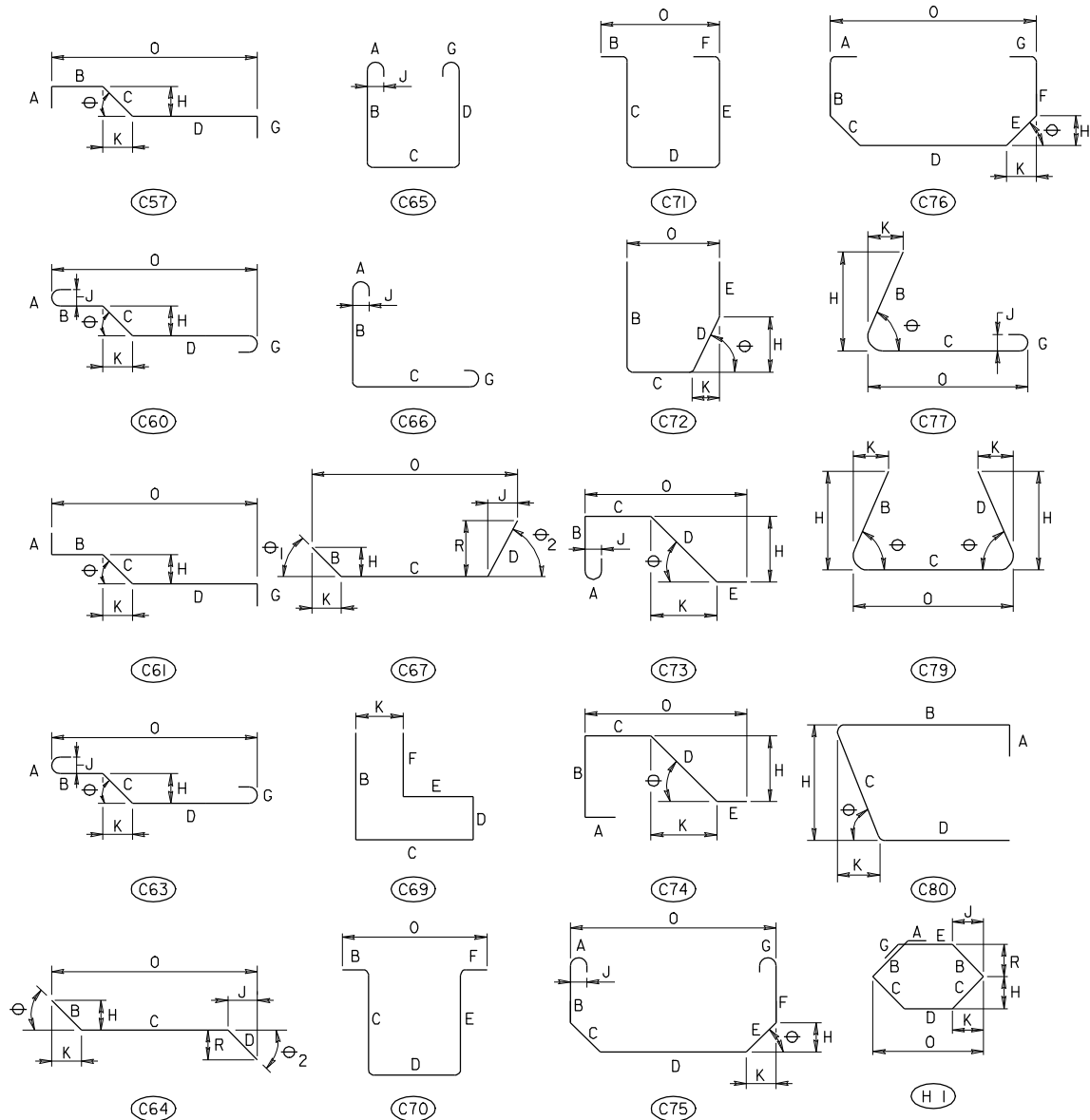
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SHEET 5 OF 8

REBAR BAR BENDS

# SHA TYPICAL BAR BENDS

## STANDARD PIN BENDING



### NOTE TO FABRICATOR

#### BENDING TOLERANCE NOTE

TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO INCH (+0'') MINUS (-) NORMAL ACI BENDING TOLERANCES

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BAR BEND TYPES  
SHA - STANDARD PIN BENDING

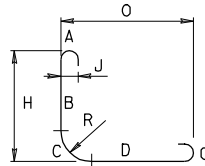
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SHEET 6 OF 8

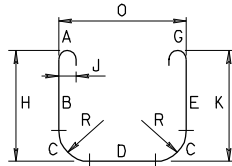
REBAR BAR BENDS

# SHA TYPICAL BAR BENDS

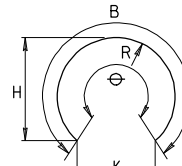
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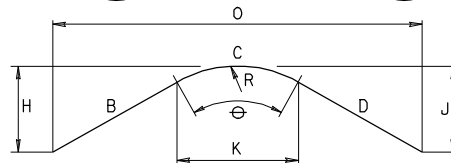
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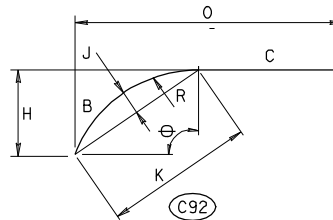
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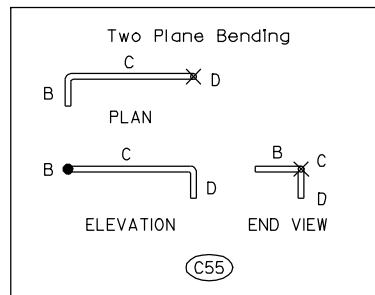
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(C91)



(C92)



(C55)

### NOTE TO FABRICATOR

#### BENDING TOLERANCE NOTE

TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO INCH (+0'') MINUS (-) NORMAL ACI BENDING TOLERANCES

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BAR BEND TYPES  
SHA - RADIUS BENDING

STANDARD NO. REBAR-BD(00.1)-94-296

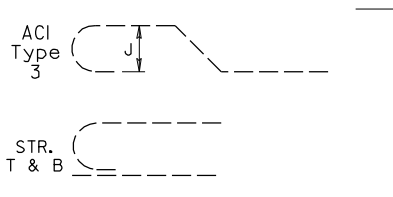
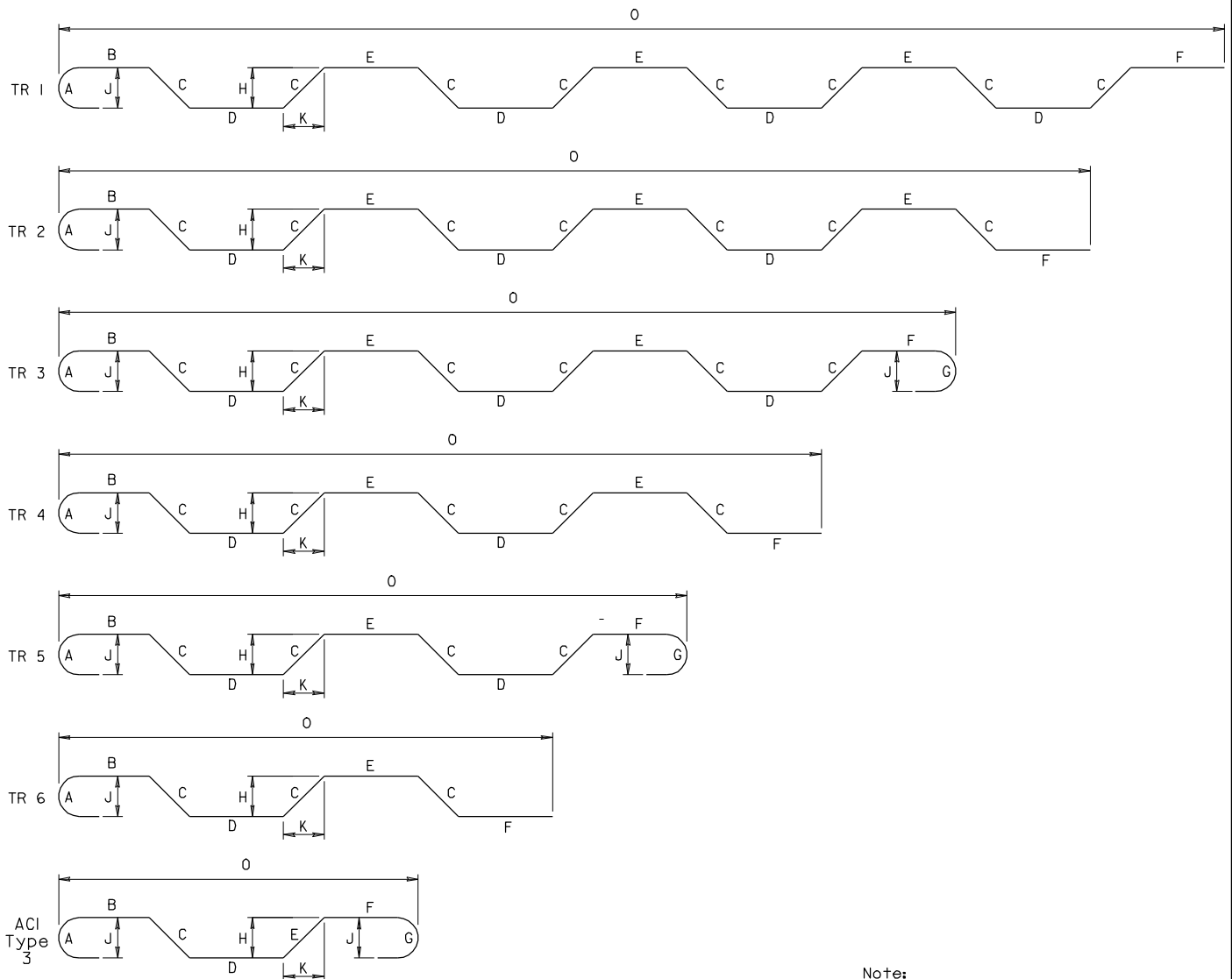
SHEET 7 OF 8

REBAR BAR BENDS



# SHA TYPICAL BAR BENDS

## TRUSS BAR CONFIGURATIONS



Straight T.\* & B. Bars

Can be substituted for bars in these configuration patterns (\*T. Bars with or without hooks)

U.N.O.

Note:  
TR 1 and TR 2 are to be used only when there are more than three bays and it is necessary to splice truss bars.

Hooks for truss bars optional.

### NOTE TO FABRICATOR

#### BENDING TOLERANCE NOTE

TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO INCH (+0") MINUS (-) NORMAL ACI BENDING TOLERANCES

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BAR BEND TYPES  
TRUSS BAR CONFIGURATIONS

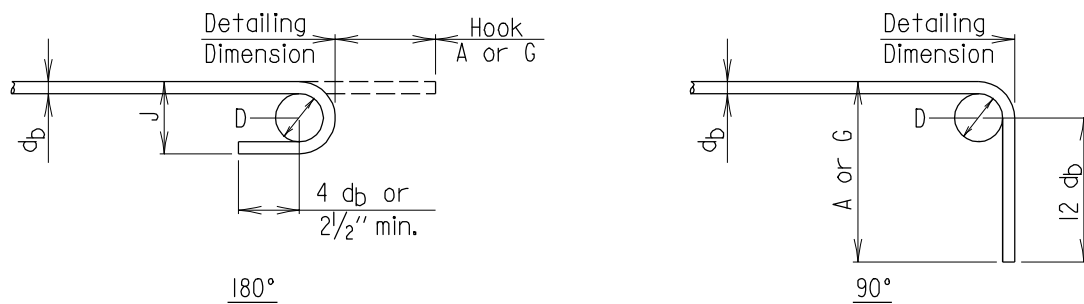
STANDARD NO. REBAR-BD(00.1)-94-296

SHEET 8 OF 8

REBAR BAR BENDS

HOOKS  
TABLE 1  
REFERENCES

1. ACI Types I thru 26
2. SHA Standard Pin Bending
3. SHA Radius Bending



RECOMMENDED END HOOKS, ALL GRADES				
BAR SIZE	Finished bend diameter	180 - deg hook		90 - deg hook
	D, in.	A or G in	J, in.	A or G in
#3	2 <sup>1</sup> / <sub>4</sub>	5	3	6
#4	3	6	4	8
#5	3 <sup>3</sup> / <sub>4</sub>	7	5	10
#6	4 <sup>1</sup> / <sub>2</sub>	8	6	1-0
#7	5 <sup>1</sup> / <sub>4</sub>	10	7	1-2
#8	6	11	8	1-4
#9	9 <sup>1</sup> / <sub>2</sub>	1-3	11 <sup>3</sup> / <sub>4</sub>	1-7
#10	10 <sup>3</sup> / <sub>4</sub>	1-5	1-1 <sup>1</sup> / <sub>4</sub>	1-10
#11	12	1-7	1-2 <sup>3</sup> / <sub>4</sub>	2-0
#14	18 <sup>1</sup> / <sub>4</sub>	2-3	1-9 <sup>3</sup> / <sub>4</sub>	2-7
#18	24	3-0	2-4 <sup>1</sup> / <sub>2</sub>	3-5

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<p>STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES</p>	<p>REINFORCING STEEL HOOK TABLES AND DIAGRAM</p>
<p>STANDARD NO. REBAR-BD(9.05)-97-320</p>	<p>SHEET <u>1</u> OF <u>2</u></p>

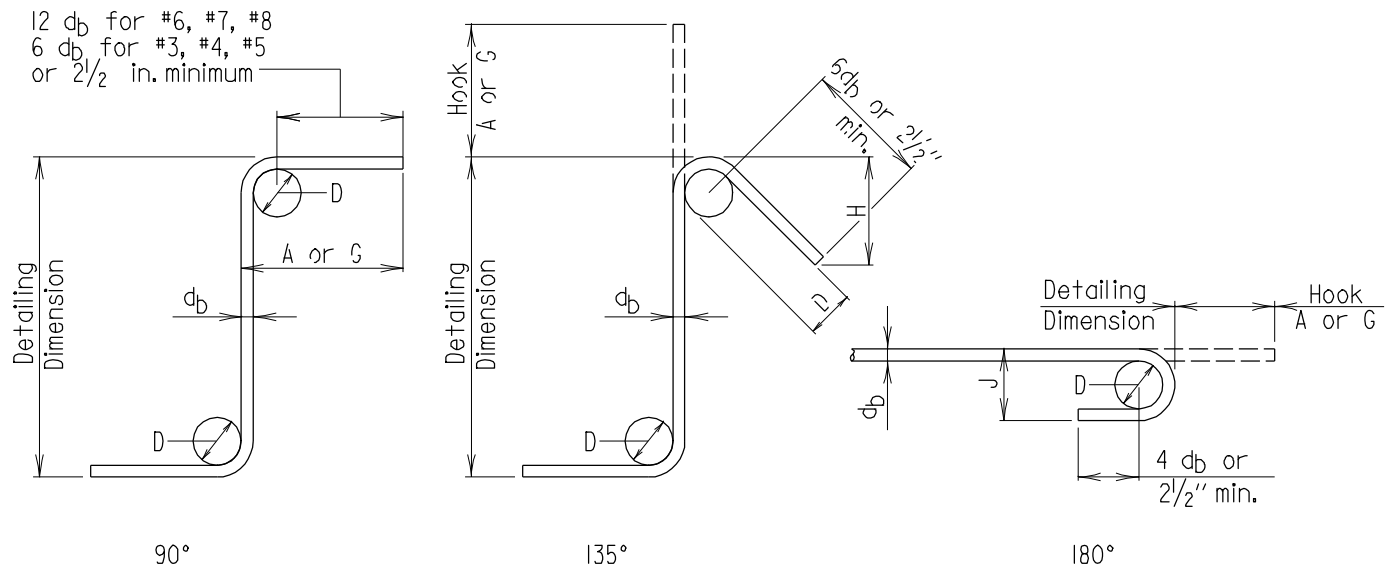
REBAR BAR BENDS

HOOKS  
TABLE II  
REFERENCES

1. ACI Types SI thru SII
2. ACI Types TI thru T8
3. SHA Ties and Stirrups

(Note: Tie and stirrup types supplied in sizes #3-#8)

STIRRUP AND TIE HOOKS



STIRRUP AND TIE HOOK DIMENSIONS, in.				
BAR SIZE	D, in.	90 - deg hook	135 - deg hook	
		A or G	A or G	H, approx
#3	1 1/2	4	4	2 1/2
#4	2	4 1/2	4 1/2	3
#5	2 1/2	6	5 1/2	3 3/4
#6	4 1/2	1-0	7 3/4	4 1/2
#7	5 1/4	1-2	9	5 1/4
#8	6	1-4	10 1/4	6

RECOMMENDED END HOOKS, ALL GRADES			
BAR SIZE	Finished bend diameter	180 - deg hook	
	D, in.	A or G in	J, in.
#3	2 1/4	5	3
#4	3	6	4
#5	3 3/4	7	5
#6	4 1/2	8	6
#7	5 1/4	10	7
#8	6	11	8

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12-19-97	

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OFFICE OF STRUCTURES

REINFORCING STEEL HOOK TABLES AND DIAGRAM

STANDARD NO. REBAR-BD(9.05)-97-320

SHEET 2 OF 2

REBAR BAR BENDS